REMARKS

Favorable reconsideration and allowance of the present patent application are respectfully requested in view of the foregoing amendments and the following remarks. Claims 11-17 are pending in the application.

Applicant notes with appreciation the Examiner's consideration of, and making of record, the documents submitted with the Information Disclosure Statement filed on April 9, 2001.

Drawings

Figure 3 was objected to because of the informalities identified in the Office Action. Additionally, Figure 2 has informalities noted by the Applicant. The separately submitted Request for Approval of Drawing Changes addresses these objections. Accordingly, the Applicant respectfully requests the Examiner to reconsider and withdraw this objection.

35 U.S.C. § 102 & 103 Rejections

Claims 11-13,15 and 17 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Kunzman et al. (U.S. Patent No. 6,054,832, "Kunzman"). Claims 14 and 16 were rejected under 35 U.S.C. § 103 (a) as allegedly being unpatentable over Kunzman et al. in view of Applicants admitted prior art ("AAPA")

Regarding claim 11, the Examiner has alleged that the Kunzman reference anticipates Applicant's claimed combinations. However, in the rejection the Examiner failed to address all the features of the claim. Particularly, the Examiner did not address the " said white light-transmitting filter being used to display information corresponding to

4

lower-order bits of said digital data" and "said non-white light-transmitting filters being used to display information corresponding to higher-order bits of said digital data" features of Applicant's claimed combinations. Accordingly, Applicant submits that the rejection is therefore defective and no basis for anticipation has been alleged by the Examiner.

Further, Applicant notes that in contrast to the claimed white light-transmitting filter that is used to display information corresponding to lower-order bits of said digital data, the Kunzman reference teaches that white component is added to each of the RGB colors to enhance the brightness. The Kunzman reference describes this function in column 4, lines 17-24 as follows:

> The signal W is used for two purposes. It determines if gains is to be applied for each pixel, and it is used in the gain calculation. This is performed in the Y_DETECT block of FIG. 2. The gain that is actually applied is limited by the amount of white available within a given pixel. It can also be limited by a maximum gain signal that could be set by the user. The signal C_max is defined to be the maximum of any value of color.

There is no teaching in the Kunzman reference to have the white light-transmitting filter correspond to the to lower-order bits of display digital data. For example, as shown in the Fig. 5 of the present application, the lower order grayscale information is solely made up of the white signal. Further, in contrast to the Kunzman reference, "the brightness of the first gray level represented using only the color filter Cw is one eighth of the brightness achieved when the three filters Cr, Cg, and Cb simultaneously represent their first gray levels" (page 14, lines 6-9 of the present application). Therefore, instead of being used to enhance the brightness of the individual colors, the

white component in the present invention is used to expand the range of gray levels that can be reproduced.

As stated in MPEP § 2131, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ...claim." *Richardson v. Suzuki Motor Co.,* 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The Examiner has failed to even allege that all features are disclosed by the Kunzman reference. Further, the reference neither expressly nor inherently describes every feature of Applicant's claimed combinations as detailed in the foregoing arguments. Therefore, Applicant respectfully submits that the applied references do not anticipate Applicant's claimed combinations as alleged by the Examiner.

Additionally, the dependent claims are allowable at least by virtue of their dependency on the above-identified independent claims. See MPEP § 2143.01. Moreover, these claims recite additional subject matter, which is not suggested by the documents taken either alone or in combination.

Double Patenting Rejection

Applicants respectfully submit that the Examiner's Double Patenting Rejection based on Application 09/749,642 is moot, as Application No. 09/749,642 was expressly abandoned on September 4, 2002.

CONCLUSION

All objections and rejections raised in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance and such allowance is respectfully solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Mark E. Olds, Reg. No. 46,570, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Attached hereto is a marked-up version of the changes made to the application by this Response.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a one (1) month extension of time for filing a reply in connection with the present application, and the required fee of $$110.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No.

02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1. 17; particularly,

extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH &, BIRCH, LLP

By:_____

MKM/MEO/lab
Michael K. Mutter, Reg. No. 29,680
P.O. Box 747
(703) 205-8000
Falls Church, VA 22040-0747

Attachment: Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

The paragraph beginning on page 13, line 17, and continuing to Page 14, line 3, has been amended as follows:

--As shown in Fig. 3, the color wheel 2 is divided into 4 segments including color filters Cr, Cg, and Cb that transmit R, G, and B, respectively. The color wheel 2 further includes a color filter Cw such as a neutral density filter that transmits white light. This filter Cw shows almost flat spectral characteristics, as opposed to the filters Cr, Cg, and Cb. Let the color filters Cr, Cg, Cb, and Cw have transmissivities of fr(λ), fg(λ), fb(λ), and fw(λ), respectively. fw(λ) is so set as to satisfy Eq. (1) below[.]:

$$\int_{380}^{780} fw(\lambda) \circ V(\lambda)d\lambda = \frac{1}{8} \circ \int_{380}^{780} \{fr(\lambda) + fg(\lambda) + fb(\lambda)\}V(\lambda)d\lambda \qquad (1)$$

where (λ) is the wavelength of light, V(λ) is the relative spectral sensitivity characteristic of the human eye, and $1/K$ is a coefficient determining the transmissivity of Cw.--

The paragraph beginning on page 14, line 17, and continuing to page 15, line 2, has been amended as follows:

--As mentioned above, where a light valve such as a DMD is used, if the minimum switching time is 0.030 ms[nm], it is difficult to achieve 256 gray levels. Therefore, $1/K$ is set to $1/2^P$ (where P is a natural number), i.e., 1/2, 1/4. 1/8, 1/16, and so forth. However, where K has a small value, the minimum switching time of the light valve poses a constraint. Where K has a large value, the segment Cw widens and thus

9

the color filters Cr, Cg, and Cb become narrowed. This will narrow the full range of gray scale in representing R, G, and B colors. Of these limiting conditions, $K=8$ is selected because it is well applied to a display device. This case is discussed below.--

The paragraph beginning on page 16, line 15, has been amended as follows:

--The color wheel 2 makes one revolution in 1/60[m]sec$\cong$16.667 msec (3600 rpm). This rotation is synchronized with the frame rate of the displayed image. The color wheel 2 has 4 color filters that form four boundaries as can be seen from the figure. In this case, therefore, the ineffective time is about 15° x 4 / 360° x 16.667 msec $\cong$ 2.778 msec. The effective time is about 16.667 msec - 2.778 msec = 13.889 msec.--